

Title (en)
Method for testing a wire bond joint

Title (de)
Verfahren zur Prüfung einer Drahtbondverbindung

Title (fr)
Procédé destiné à la vérification d'une connexion filaire

Publication
EP 2728613 A1 20140507 (DE)

Application
EP 12191259 A 20121105

Priority
EP 12191259 A 20121105

Abstract (en)
The method comprises arranging a bonding wire (15) on a wire guiding device during or immediately following the production of a wire bonding connection or clamping the bonding wire by a moving a wire guide of the wire guiding device together with a wire clamp. The bonding wire is clamped by a defined clamping force in the wire clamp during the movement of the wire guide. A magnitude of the clamping force is selected such that while reaching a specific tensile force in the bonding wire, the bonding wire slides through the wire clamp. The method comprises arranging a bonding wire (15) on a wire guiding device during or immediately following the production of a wire bonding connection or clamping the bonding wire by moving a wire guide of the wire guiding device together with a wire clamp. The bonding wire is clamped by a defined clamping force in the wire clamp during the movement of the wire guide. A magnitude of the clamping force is selected such that, while reaching a specific tensile force in the bonding wire, the bonding wire slides through the wire clamp and a continuous movement of the wire guide between clamping surfaces of the wire clamp and a wire surface of the bonding wire is changed from a static friction to kinetic friction. The wire clamp is continuously moved along a wire guide path from a first wire bonding connection between the bonding wire and a first contact surface to a second wire bonding connection between the bonding wire and a second contact surface. The movement of the wire clamp is carried out at a constant speed. The clamping force is reduced after the formation of the sliding friction between the wire clamp and the bonding wire and reduced such that the tensile force slides along the wire guide path of the bonding wire by movement of the wire clamp and the wire guide. The tensile force is randomly measured when change of the static friction to kinetic friction in the bonding wire is occurred. A corresponding change in the clamping force takes place during determination of tolerance levels of tensile force.

Abstract (de)
Die Erfindung betrifft ein Verfahren zur Prüfung einer mittels eines Bondwerkzeugs (11, 31) hergestellten Drahtbondverbindung (40) zwischen einem Bonddraht (16) und einer Kontaktfläche (13) eines Substrats (14), wobei der Bonddraht während oder unmittelbar nachfolgend der Herstellung der Drahtbondverbindung mit einer an einer Drahtführungseinrichtung (17, 34) angeordneten oder mit einer zusammen mit der Drahtführungsbewegung der Drahtführungseinrichtung bewegten Drahtklemme (19) gehalten wird, wobei der Bonddraht während der Drahtführungsbewegung mit definierter Schließkraft F in der Drahtklemme gehalten wird, wobei die Größe der Schließkraft F so gewählt wird, dass bei Erreichen einer definierten Zugkraft Z im Bonddraht und Fortsetzung der Drahtführungsbewegung zwischen Klemmflächen (36) der Drahtklemme und einer Drahtoberfläche (37) des Bonddrahts ein Wechsel von Haftreibung zu Gleitreibung erfolgt und der Bonddraht durch die Drahtklemme gleitet.

IPC 8 full level
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CPC (source: EP)
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C-Set (source: EP)
H01L 2924/00014 + H01L 2224/45099

Citation (applicant)
EP 1310319 A1 20030514 - F & K DELVOTEC BONDTECH GMBH [DE]

Citation (search report)
• [A] DE 19752319 A1 19980528 - ORTHODYNE ELECTRONICS CORP [US]
• [AD] EP 1310319 A1 20030514 - F & K DELVOTEC BONDTECH GMBH [DE]
• [A] EP 2189235 A1 20100526 - ASM ASSEMBLY AUTOMATION LTD [CN]
• [A] JP H04245451 A 19920902 - MITSUBISHI ELECTRIC CORP
• [A] US 2010181367 A1 20100722 - NAKAO MITSUHIRO [JP], et al
• [A] JP 2011181643 A 20110915 - SUMITOMO METAL MINING CO

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